

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF HAWAII

In the Matter of

PUBLIC UTILITIES COMMISSION

Instituting a Proceeding to Investigate the
Implementation Of Feed-in Tariffs.

DOCKET NO. 2008-0273

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PUBLIC UTILITIES
COMMISSION

**BLUE PLANET FOUNDATION'S COMMENTS ON
PROPOSED TIERS 1 AND 2 TARIFFS**

DECLARATION OF MICHAEL E. CHAMPLEY

AND

CERTIFICATE OF SERVICE

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Blue Planet Foundation ("Blue Planet"), by and through its attorneys Schlack Ito Lockwood Piper & Elkind, and pursuant to the Commission's October 29, 2009 Order Setting Schedule, hereby submits its comments ("Comments") on the proposed Tiers 1 and 2 Tariffs submitted on January 7, 2010 by (i) Zero Emissions Leasing, LLC ("Zero Emissions") and Clean Energy Maui ("CEM") (collectively, "Zero Emissions"), and (ii) the Hawaiian Electric Company, Inc., Hawaii Electric Light Company, Inc., and Maui Electric Company, Limited (collectively, "HECO Companies").

I. PURPOSE OF THE FEED-IN TARIFF AND TIERS 1 AND 2 TARIFF

The Tiers 1 and 2 tariff adopted by the Commission in this proceeding should comply with both the letter and the spirit of the Commission's September 25, 2009 Decision and Order ("D&O"). It must not only incorporate the specific requirements set forth in the D&O, but must also fulfill the overarching purpose the feed-in tariff ("FIT") program. If the tariff impedes and ultimately fails to achieve the purpose of the FIT, the benefits to Hawaii from the FIT will be lost and the program may be deemed a failure. It may therefore be helpful to briefly review the purpose of the FIT, as set forth in the D&O, as an aid to evaluating the Tiers 1 and 2 tariffs

proposed by Zero Emissions (“Zero Emissions Tariff”) and the HECO Companies (“HECO Tariff”).¹

1. The Purpose of the FIT, as Stated in the D&O, is to Dramatically Accelerate Renewable Energy Acquisition and Maximize the Reduction of Fossil Fuel Consumption.

The purpose of the FIT is not simply to provide another renewable energy procurement mechanism. As the Commission has noted, the FIT is needed in part to remedy the ongoing failure of existing mechanisms to procure sufficient amounts of renewable energy. *See, e.g.* D&O at 13 (“a FIT is needed for the following reasons: . . . ‘only 4% of HECO’s sales (Oahu) were supplied by renewable energy, and 96% were supplied by imported fossil fuels.’”). Existing procurement methods have failed to timely achieve Hawaii’s clean energy objectives. *See, e.g.*, Energy Agreement² at 1 (“the future of Hawaii requires” that Hawaii move “more decisively and irreversibly” towards renewable energy).

Rather, the purpose of the FIT is to dramatically accelerate renewable energy use in Hawaii. The second sentence of the D&O declares that FITs are approved to “accelerate the acquisition of renewable energy.” *Id.* at 1 (emphasis added). The D&O further cites to the Commission’s October 24, 2008 Order Initiating Investigation, which likewise affirms:

[The Energy] Agreement is a commitment on the part of the State and the HECO Companies to accelerate the addition of new, clean resources on all islands[.] . . . Included in the Agreement is a commitment by the HECO Companies to implement feed-in tariffs “to dramatically accelerate the addition of renewable energy from new sources” and to “encourage increased development of alternative energy projects.”

¹ The Zero Emissions’ and HECO Companies’ Tariffs consist of two main components, the Schedule FIT and the Standard Agreement, each of which is referred to accordingly. Unless otherwise noted, Blue Planet’s comments on the Schedule FITs submitted by Zero Emissions and the HECO Companies for the Hawaiian Electric Company, Inc. (“HECO”) apply to the schedules submitted for other companies and islands.

² “Energy Agreement Among the State of Hawaii, Division of Consumer Advocacy of the Department of Commerce and Consumer Affairs, and the Hawaiian Electric Companies” dated Oct. 20, 2008 (“Energy Agreement”).

D&O at 2-3 (emphasis added) (citations omitted); *see also id.* at 5 (Statement of Issues includes best design for FITs to “accelerate and increase the development of Hawaii’s renewable energy resources[.]”); *id.* at 14 (according to the parties, a FIT will encourage “accelerated acquisition of renewable energy”); *id.* at 15 (FIT may “accelerate the acquisition of renewable energy”); *id.* at 42-43 (Commission’s desire to “accelerate the adoption of renewable energy” outweighs HECO Companies’ project size concerns). A corollary purpose of the FIT is to maximize the reduction in consumption of fossil fuels. In the D&O section titled “Role of FITs,” the Commission quotes in pertinent part section 269-27.2(b), Hawaii Revised Statutes, which provides statutory authority for the Commission to direct public utilities to acquire electricity from generated from “nonfossil fuel sources” to “maximize the reduction in the consumption of fossil fuels.” *Id.*

Consistent with the foregoing, the Commission has summarized the general purpose of the FIT and rationale for adopting the FIT as follows:

Given Hawaii’s overdependence on imported fossil fuels for its current electric generation, and the clear benefits a FIT can provide, the commission finds that a FIT should be adopted in Hawaii. There is no other state in the nation that is as dependent on oil as Hawaii is. That oil, which is the primary source of our electric generation, is imported into our State and comes from countries that may not be sympathetic to U.S. interests. A procurement mechanism, such as a FIT, may accelerate the acquisition of renewable energy onto the HECO Companies’ systems thereby reducing our State’s overall dependence on foreign oil; and produce some certainty as to all the price of electricity will no longer be as heavily tied to volatile oil prices. A process that is predictable in setting forth the essential terms under which renewable energy will be purchased by the utilities will, as SA and HSEA assert, reduce “the risk, and hence the cost, of non-utility generated power” and provide economic growth through “green collar” jobs and reduced export of dollars earned to purchase fossil fuels.

D&O at 15-16 (emphasis added).

Accordingly, the Commission should adopt Tiers 1 and 2 tariff rates and provisions that support achievement of the FIT purpose by dramatically accelerating renewable energy acquisition and maximizing reduction in consumption of fossil fuels. Blue Planet views adoption of a tariff that dramatically accelerates renewable energy acquisition as consistent not only with the D&O but also with the public interest. Blue Planet is a leading clean energy public interest organization in Hawaii with over 10,000 registered “Friends of Blue Planet.” Blue Planet and its supporters are dedicated to promoting Hawaii’s swift transition to a clean energy economy through the rapid adoption of renewable energy and increased energy efficiency. A FIT that successfully promotes clean energy in Hawaii, consistent with the D&O, will benefit the economy, the environment, and Hawaii ratepayers.

2. The D&O Provides a Benchmark for Measuring Success of the FIT in Achieving Its Purpose.

The D&O provides that the purpose of the FIT is to dramatically accelerate renewable energy acquisition and identifies maximum amounts of renewable energy to be acquired during the initial two-year period of the FIT. Thus, the FIT may be said to succeed in achieving its purpose in proportion to the extent it fosters acquisition of the maximum amount of renewable energy allowed under the FIT. The D&O establishes program caps of nameplate capacity equal to five percent of 2008 peak demand for each of the HECO Companies (“program caps”). D&O at 55. Nameplate capacity equal to five percent of 2008 peak demand for each of the HECO Companies may be estimated to total approximately eighty megawatts (“MW”). Although the D&O states that program caps are not mandates, *id.* at 56, they nonetheless provide a quantifiable measure of the FIT’s achievement or lack of achievement of the FIT’s purpose to “dramatically accelerate” renewable energy acquisition and maximize the reduction in consumption of fossil fuels.

3. **The Tiers 1 and 2 Tariff Should Avoid Unduly Increasing Developer Risk Based on System Reliability Concerns.**

To succeed, the FIT must reduce developer risk relative to other procurement mechanisms which have failed to timely achieve Hawaii's energy policy objectives. Despite the FIT's purpose of dramatically accelerating Hawaii's renewable energy use, the January 7, 2010 letter accompanying the HECO Companies' proposed tariff ("HECO Tariff Letter") characterizes "the Companies' obligation to ensure system reliability" as a "principal directive" of the D&O. HECO Tariff Letter at 13. Although the FIT entails system reliability considerations, a tariff that overemphasizes system reliability and introduces provisions that unnecessarily increase developer risk may impede achievement of the FIT's purpose. For a successful FIT, Blue Planet respectfully submits that the Commission should avoid giving undue importance to such potential limitations and should favor Tiers 1 and 2 tariff rates and provisions reasonably likely to dramatically accelerate renewable energy acquisition and maximize reduction in consumption of fossil fuels, for the reasons set forth in the D&O.

II. COMMENTS ON PROPOSED TIERS 1 AND 2 TARIFFS

A. The Tariff Should Avoid Provisions that Introduce Potentially Excessive and Arbitrary Utility Discretion to Curtail Projects.

Existing procurement methods have failed to timely achieve Hawaii's clean energy objectives and the FIT may suffer a similar fate if the tariff contains provisions concerning interconnection and curtailment that essentially undermine the unique beneficial features of a FIT because they are onerous, overreaching, and render the FIT unattractive by unacceptably increasing developer risk. Under the D&O, the HECO Companies may refuse to interconnect projects that (i) will "substantially compromise reliability," (ii) result in an "unreasonable cost to ratepayers," or (iii) would likely face "significant curtailment" or cause significant curtailment for existing renewable energy generators. *Id.* at 44. The D&O also states

that “the commission will not establish a compensation mechanism for curtailment of FIT projects at this time.”³ *Id.* at 71.

Section 6 of the HECO Standard Agreement contains curtailment language that that is onerous, overreaching, and likely to render the FIT unattractive by unacceptably increasing developer risk and jeopardizing revenue uncertainty. This section states:

This Section 6 (Continuity of Service) shall apply to all Facilities with a Design Capacity above the trigger for Supervisory Control and Data Acquisition (“SCADA”) set forth in the Company Tariff, Rule 14. Section H, and to all other Facilities, regardless of size, where it is deemed, at the Company's sole discretion, that an alternate means of curtailment is technically feasible.

Id. This language gives excessive discretion to the HECO Companies and creates unacceptable levels of developer risk. Importantly, this provision may in effect allow the HECO Companies to modify their tariff Rule 14, section H (“Rule 14.H”) without Commission review. In addition, it forces project developers to assume unknown and unknowable potential future economic and operational risks. Tier 1 projects in particular should not be subject to curtailment even if an “alternate means of curtailment is technically feasible.” *Id.*

Section 6(a) is similarly problematic and introduces discretionary evaluation by the utilities related to good engineering practices:

(a) The Company may require the Seller to temporarily curtail, interrupt or reduce deliveries of energy . . . if . . . the Facility does not operate in compliance with Good Engineering and Operating Practices or acceptance of energy from the Seller by the Company would require the Company to operate the Company System

³ Potential ambiguity exists as to whether this language bars a FIT that requires the HECO Companies to pay new FIT projects for curtailed energy. This language is found in D&O section C, “Rates,” subsections (1), “Rate Components” and (c), “Curtailment” and may reasonably be read to preclude curtailment as a component in calculating the FIT rate. Insofar as the HECO Companies paying new FIT projects for curtailed energy constitutes a “compensation mechanism for curtailment,” this language may also be read to bar direct payment for curtailed energy (rather than compensation through FIT rates). The D&O does not otherwise appear to directly bar such payments, however, and payment for curtailment is certainly consistent with and strongly supportive of the FIT policy of dramatically accelerating renewable energy acquisition by ensuring revenue certainty to prospective project developers.

outside of Good Engineering and Operating Practices which in this case shall include, but not be limited to, excessive system frequency fluctuations or excessive voltage deviations, and any situation that the Company System Operator determines, at his or her sole discretion, could place in jeopardy system reliability.

Id.(emphasis added).

This language gives excessive discretion to the HECO Companies and introduces unacceptable levels of developer risk of curtailment. Curtailment for “any situation that the Company System Operator determines, at his or her sole discretion, could place in jeopardy system reliability” is not necessary insofar as system reliability and safety concerns are addressed by reliability standards and Rule 14.H. *Id.* (emphasis added). This is an example of language that goes too far and therefore may undermine the essential viability of the FIT. At a minimum, a clear definition of what constitutes “excessive” system frequency and voltage fluctuations must be established through objective and measurable formal reliability standards subject to Commission review and approval, such as the reliability standards under development in this proceeding.

The definition of “Good Engineering and Operating Practices” contained in the HECO Standard Agreement grants further excessive discretion to the HECO Companies. In addition to section 6(a), section 4(b) of the HECO Standard Agreement requires seller to perform its obligations under the Agreement “in accordance with Good Engineering and Operating Practices.” *Id.* Appendix A to the HECO Standard Agreement, “Definitions,” defines the term as follows:

Good Engineering and Operating Practices: The practices, methods and acts engaged in or approved by a significant portion of the electric utility industry for similarly situated U.S. facilities that at a particular time, in the exercise of reasonable judgment in light of the facts known or that reasonably should be known at the

time a decision is made, would be expected to accomplish the desired result in a manner consistent with law, regulation, reliability, safety, environmental protection, economy and expedition.

With respect to the Facility, Good Engineering and Operating Practices include, but are not limited to, taking reasonable steps to ensure that:

(1) Adequate materials, resources and supplies, including fuel, are available to meet the Facility's needs under normal conditions and reasonably anticipated abnormal conditions;

(2) Sufficient operating personnel are available and are adequately experienced and trained to operate the Facility properly, efficiently and within manufacturer's guidelines and specifications and are capable of responding to emergency conditions;

(3) Preventive, routine and non-routine maintenance and repairs are performed on a basis that ensures reliable long-term and safe operation, and are performed by knowledgeable, trained and experienced personnel utilizing proper equipment, tools, and procedures;

(4) Appropriate monitoring and testing is done to ensure equipment is functioning as designed and to provide assurance that equipment will function properly under both normal and emergency conditions; and

(5) Equipment is operated in a manner safe to workers, the general public and the environment and in accordance with equipment manufacturer's specifications, including, without limitation, defined limitations such as steam pressure, temperature, moisture content, chemical content, quality of make-up water, operating voltage, current, frequency, rotational speed, polarity, synchronization, control system limits, etc.

Id. (emphasis added).

This lengthy provision injects a host of discretionary evaluations by the HECO Companies upon which curtailment of energy may be imposed. For example, the HECO Companies may curtail a facility if they deem it to have failed to "exercise of reasonable judgment in light of the facts known or that reasonably should be known at the time a decision is

made” with regard to operating practices. *Id.* Curtailment may be imposed for what the HECO Companies deem to be an inadequate fuel supply, insufficient operating personnel and inadequately experienced or trained personnel, the schedule on which maintenance is conducted, equipment testing, and safe operation of equipment. In addition, the definition states that such practices “include, but are not limited to” the enumerated items. Thus, a FIT project developer is exposed to potential curtailment for failing to comply with certain Good Engineering and Operating Practices about which it may not be aware at the time of the alleged failure to comply. By contrast, good engineering and operating practices for U.S. mainland electrical energy facilities place reasonable limits on utility discretion because there are extensive formal and transparent electric reliability standards and operating practices, independent system operators, and extensive regulatory oversight of grid operations. Declaration of Michael E. Champley dated January 21, 2010 at para. 6.

As section 6(a) affirms, the HECO Companies shall not be required to pay for energy that is curtailed pursuant to this section. A tariff that includes such an onerous provision undercuts the FIT’s basic premise of revenue certainty by allowing the utilities to curtail a facility for an unacceptably wide range of evaluative decisions. To ensure a successful FIT, Blue Planet therefore respectfully submits that section 6(a) and the definition of Good Engineering and Operating Practices should be substantially revised or omitted from the Tiers 1 and 2 tariff adopted by the Commission in this proceeding.

B. The Tariff Should Avoid Authorizing Curtailment Based on the Cost of Purchased Energy.

Section 6(b) states that:

The Company shall not be required to purchase energy during any period during which, due to operational circumstances, purchases from the Seller will result in costs greater than those which the

Company would incur if it did not make those purchases, but instead generated an equivalent amount of energy itself. . . . Without limiting the foregoing, conditions when curtailment of energy delivery by the Seller may be implemented by the Company may include when, during excess energy conditions, the Company would have to (i) cycle off-line any Base Load Unit, or (ii) remove one or more components of a combined cycle unit (such as shutting off one combustion turbine or one combustion turbine and the steam turbine of a dual-train combined cycle unit (consisting of two combustion turbines and one steam turbine)) in order to purchase energy from the Seller. The Company shall not curtail pursuant to this Section 6(b) of the Agreement solely as a consequence of the Company's filed Avoided Energy Cost Data being lower than the applicable energy payment rate paid to the Seller under this Agreement.

Id. (emphasis added).

This language is problematic for several reasons and creates yet another circumstance under which the HECO Companies may curtail a project. First, the necessity for this type of curtailment from a potential systems reliability perspective is unclear and must be weighed against the impact of multiple curtailment provisions on developer risk and the viability of the FIT. Second, it is discriminatory insofar as utility generation is not subject to curtailment. Third, although the D&O authorizes the HECO Companies to refuse to interconnect projects that result in an “unreasonable cost to ratepayers,” it does not appear to authorize curtailment based on ratepayer impact and the authority for this provision in the D&O is unclear.

Finally, the D&O has concluded that in the long run a FIT will benefit ratepayers. D&O at 14. Thus, the FIT has economic value to ratepayers. The economic value of the FIT to ratepayers over long run – which relies on the successful launch of the FIT in the initial two-year period – may be greater than any economic benefit derived from implementation of this provision. To ensure a successful FIT, Blue Planet respectfully submits that section 6(b) should be substantially revised or omitted from the Tiers 1 and 2 tariff adopted by the Commission in this proceeding.

C. Tariff Rates Must Achieve the FIT Purpose of Dramatically Accelerating Renewable Energy Acquisition.

Attractive rates that provide the opportunity to earn reasonable returns are critical to the success of the FIT and the D&O provides guidance for their determination. FIT rates are to be levelized rates based on the project cost of a typical or average project and reasonable profit of a typical project. D&O at 2, 62. They are to be calculated based on “project and generation cost information, energy production, and the target internal rate of return.” *Id.* at 62. As noted in the HECO Tariff Letter, on November 18, 2009, the HECO Companies have distributed to the parties “the Black & Veatch public model” (“HECO model”). *Id.* at 2. The HECO Companies also distributed “the assumptions that went into the Hawaiian Electric Companies’ rate development[.]” (“HECO assumptions”) *Id.* The HECO model and HECO assumptions were used by the HECO Companies to develop proposed FIT rates for the HECO Tariff (“HECO modeling”). *Id.*

FIT rates for Tier 2 technologies that are derived from the target Internal Rate of Return (“IRR”) for an unlevered project appear most likely to achieve the FIT purpose of dramatically accelerating renewable energy acquisition. The unlevered project IRR measures the overall rate of return a project would earn regardless of how it is financed (i.e., equity returns are not enhanced by using debt leverage). The unlevered project IRR financial metric is widely used to measure the overall economic attractiveness of a project investment and is not affected by how a project is financed. Simply stated, any project investment should stand on its own merit as a viable project regardless of how it is financed or leveraged. For illustrative purposes, Blue Planet has conducted rate modeling utilizing the HECO model (“Blue Planet unlevered modeling”) for FIT rates for Tier 2 solar photovoltaic (“PV”) projects. For its solar PV Tier 2 unlevered rate modeling, Blue Planet has retained the HECO assumptions with the exception of

the assumptions concerning debt financing. Blue Planet changed all of the HECO assumptions concerning debt financing to result in the modeling of rates for an unlevered, rather than levered, project.⁴ True and correct copies of spreadsheets from this modeling of rates for Tier 2 solar PV projects are attached as Exhibit 1 to the attached declaration of Mr. Champley. *See* Dec. of M. Champley at para. 7.

Blue Planet's unlevered rate modeling results in Tier 2 solar PV project rates that may be attractive to project developers. By adhering to the basic principle of separating investment and financing decisions, such rate modeling focuses the rate determination by eliminating the need to make assumptions about project financing and credit market conditions. These assumptions relate to volatile credit markets, shifting lender perceptions of the market conditions, the current interest rate environment, and related local and global market dynamics beyond the project developer's control – all of which may change from the time the rate is set until completion of the initial two-year FIT period. (It should be noted that the HECO FIT Schedule proposes at section G(3) to compensate for changes in renewable energy income tax credits – similarly volatile financing assumptions – with essentially an automatic adjustment provision.)

Blue Planet's unlevered rate modeling utilizes an IRR that is reasonable and fair. The modeling utilizes an unlevered project IRR in the range of 8-9%. Such an IRR is relatively close to the overall rate of return authorized for the HECO Companies by the Commission for utility capital investment projects (i.e., allowed return on rate base), which is 7.5 - 8.0% on an

⁴ The D&O does not appear to require rate modeling to be based on levered projects rather than unlevered projects. Although the D&O identifies "financing costs" as a project cost, the D&O also cites to the Department of Business, Economic Development, and Tourism's ("DBEDT") list of project costs which does not include permanent financing costs for a levered project. Similarly, the HECO Companies' list of project costs cited in the D&O includes permanent financing costs but only if such financing is used: "The cost of permanent financing includes making assumptions about . . . the cost of debt (if used)[.] . . . Lender requirements such as reserves and minimum debt coverage ratios should also be considered as applicable." *Id.* at 60-61 (emphasis added).

equivalent after-tax basis. Dec. of M. Champley at para. 8. By contrast, actual unlevered project IRRs from the HECO modeling, based on the HECO Companies' proposed Tier 2 solar PV rates, are 5.9% and 6.5%, depending on the tax credit. Dec. of M. Champley at para. 9. Thus, Tier 2 solar PV FIT rates higher than those proposed by the HECO Companies are required to provide FIT projects the opportunity to earn unlevered project returns equivalent to the returns the HECO Companies are entitled to earn on their utility capital investments (i.e., rate base). Dec. of M. Champley at para. 10.

In sum, the Blue Planet unlevered modeling results in rates that are likely to achieve the purpose of the FIT. For Tier 2 Solar PV projects, for example, these rates would be 27.0 ¢/kWh for projects utilizing the 24.5% State of Hawaii renewable energy income tax credit and 22.8 ¢/kWh for projects utilizing the 35.0% State of Hawaii renewable energy income tax credit. *See* Spreadsheets attached as Exhibit 1 to Dec. of M. Champley. The unlevered modeling approach and resulting rates merit further consideration. This may be especially relevant given that successful implementation of the FIT program, resulting in the construction of facilities capable of generating approximately eighty MW of electrical energy in the initial two-year FIT program, may entail capital expenditures in the range of approximately \$0.4 to .05 billion. Dec. of M. Champley at para. 11.

D. The Tariff Should Clearly Establish a Tier 1 Baseline FIT Rate and Tier 2 Baseline FIT Rate.

The D&O establishes a Baseline FIT and states that "the baseline rate shall equal the lowest specified FIT rate for any given project size." Thus, the D&O directs that there shall be a Baseline FIT rate for each project size established under the FIT. The FIT establishes a total of five project sizes. Accordingly, the Zero Emissions Schedule FIT contains a table to set forth five Baseline FIT rates: Tier 1 (<20kW), Tier 2 (>20kW and <100kW), Tier 3 (> 100kW and

<250kW), Tier 3 (> 250 kW and < 500 kW), and Tier 3 (> 500 kW and < 5000 kW). *See* Zero Emissions Schedule FIT at 7.

The HECO Tariff appears to be potentially ambiguous concerning establishment of a Baseline FIT rate for each FIT project size. Schedule H of the HECO FIT Schedule, “Baseline FIT Rate,” states that the Baseline FIT rate means “the rate equal to the lowest specified FIT energy payment rate for any project size or technology on any island, within the applicable project size category.” *Id.* The HECO Companies also state, however, that the Baseline FIT rate will be “the lowest specified FIT energy payment rate for any project size or technology on any island and accordingly, will likely have to be developed once the pricing for Tier 3 projects has been developed and subsequently approved by the Commission,” HECO Tariff Letter at 12 (emphasis added), and the proposed rate table in the HECO Schedule FIT contains only one line which states “Baseline FIT Rate based on Tier XX Technology Rate for Oahu,” rather than two separate lines, one for the Tier 1 Baseline FIT rate and another for the Tier 2 FIT Baseline rate.

In accordance with the D&O, Blue Planet views the Baseline FIT not as a secondary or ancillary category, but as a “fifth” technology equivalent in all relevant aspects to the four eligible technologies identified in the D&O. The Tiers 1 and 2 tariff adopted in by the Commission should have no ambiguity regarding establishment of a Baseline FIT rate for each project size under the FIT.

E. The Tariff Should Not Suggest Reliability Standards Establish the FIT Program Caps and Should Identify the Tier 1 Set-Aside.

The D&O establishes program caps of nameplate capacity equal to five percent of 2008 peak demand for each of the HECO Companies (“program caps”). D&O at 55.

Accordingly, the Zero Emissions Schedule FIT tariff states:

The obligations of the Company to interconnect a Renewable Energy Generating Facility having an Electrical Capacity of less than 20 kilowatts to the Company's electric system, and to offer an Schedule FIT Agreement to a Renewable Energy Generator that applies for interconnection of such Renewable Energy Generating Facility to the electric system of the Company under this Schedule, shall not apply with respect to a Renewable Energy Generator that applies for interconnection of a Renewable Energy Generating Facility to the electric system of the Company under this Schedule after the time at which the Company has received applications for interconnection of Renewable Energy Generating Facilities, each having an Electrical Capacity of less than 20 kilowatts, and having an aggregate Electrical Capacity that equals or exceeds .25 per cent of the 2008 peak demand for such electrical system.

The obligations of the Company to interconnect a Renewable Energy Generating Facility having an Electrical Capacity of 20 kilowatts or more to the Company's electric system, and to offer an Schedule FIT Agreement to a Renewable Energy Generator that applies for interconnection of such Renewable Energy Generating Facility to the electric system of the Company under this Schedule, shall not apply with respect to a Renewable Energy Generator that applies for interconnection of a Renewable Energy Generating Facility to the electric system of the Company under this Schedule after the time at which the Company has received applications for interconnection of Renewable Energy Generating Facilities, each having an Electrical Capacity of 20 kilowatts or more, and having an aggregate Electrical Capacity that equals or exceeds 4.75 per cent of the 2008 peak demand for such electrical system.

Id. at 8-9. The .25% and 4.75% figures accurately reflect the D&O's program caps, as well as the set-aside for Tier 1 projects established by the D&O ("Tier 1 set-aside"). *See* D&O at 57 ("The commission is also aware of the concern on project diversity, and will reserve five percent of the FIT cap of each of the HECO Companies for projects under 20 kW.").

By contrast, the HECO FIT Schedule appears to omit any reference to the program caps and instead states that the availability of service under the HECO FIT Schedule shall be closed as determined through "reliability standards and other appropriate mechanisms."

Id. at 3. Blue Planet respectfully submits that the Tiers 1 and 2 tariff adopted in this proceeding

should avoid undue emphasis on reliability standards and should include reference to program caps and the Tier 1 set-aside.

F. Any Provision Prohibiting FIT Agreement Renegotiation Must Be Mutual.

Section B of the HECO Schedule FIT states that a seller shall not attempt to renegotiate the terms and conditions of the HECO Standard Agreement. This requirement should apply equally to the HECO Companies and the tariff should state that HECO Companies also shall not attempt to renegotiate the terms and conditions of the Agreement.

G. The Tariff Should Incorporate a Standard Interconnection Agreement that is Used for All Procurement Mechanisms.

Finally, Blue Planet supports standard interconnection terms and conditions, and a standard interconnection agreement, for all FIT and non-FIT as-available renewable energy procurement mechanisms, such as competitive bidding, bilateral power purchase agreements, net energy metering, Schedule Q, and possibly the PV Host Program. Issues specific to a certain contracting mechanism should be addressed in the tariff; the scope of the standardized interconnection agreement should be limited to technical issues only. A standardized interconnection agreement would support development and implementation of transparent and highly coordinated and integrated queuing processes for all contracting mechanisms. In addition, because a standardized interconnection agreement would be limited to technical issues, and could incorporate by reference the most current reliability standards, it will support expansion of the ability of the electric grid to accommodate increasing as-available renewable resources due to future upgrades to the grid, including proposed “smart grid” improvements.

DATED: Honolulu, Hawaii, January 21, 2010.



DOUGLAS A. CODIGA
Attorney for Blue Planet Foundation

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DOCKET NO. 2008-0273

DECLARATION OF MICHAEL E. CHAMPLEY

I, MICHAEL E. CHAMPLEY, declare and say:

1. I am the principal of Kahakuloa Energy Advisors LLC, an energy consulting firm which advises clients on strategic, regulatory policy and operational issues primarily related to electric resource planning.

2. I hold degrees in engineering and business and have served as Senior Vice President – Regulatory Affairs, Senior Vice President – Power Supply, and Vice President – Marketing, and corporate officer and/or director of non-utility energy marketing and project development affiliates at DTE Energy, Detroit, Michigan from 1971 through 2006.

3. I have extensive professional experience in industry restructuring, regulatory strategy, financial and strategic planning, retail and wholesale energy marketing, generation supply planning, development and operations and utility performance management.

4. I serve as a professional consultant to Intervenor Party Blue Planet Foundation ("Blue Planet") in the State of Hawaii Public Utilities Commission Docket No. 2008-0273 concerning implementation of feed-in tariffs ("FIT").

5. This declaration is based upon my personal knowledge and, where stated, upon my reasonable belief and information and I am competent to testify as to the matters stated in this declaration.

6. Good engineering and operating practices for U.S. mainland electrical energy facilities place reasonable limits on utility discretion because there are extensive formal and transparent electric reliability standards and operating practices, independent system operators, and extensive regulatory oversight of grid operations.

7. On behalf of Blue Planet I conducted rate modeling utilizing the Black & Veatch model distributed by the HECO Companies to the parties in Docket 2008-0273 and the assumptions employed by the HECO Companies. For this modeling, the HECO Companies' assumptions have been retained, with the exception of the assumptions concerning debt financing which were changed to result in the modeling of rates for an unlevered, rather than levered, project. True and correct copies of spreadsheets from this modeling of rates for Tier 2 solar photovoltaic ("PV") projects are attached as Exhibit 1 to this Declaration.

8. Upon information and belief, the overall rate of return authorized for the HECO Companies by the Commission for utility capital investment projects (i.e., allowed return on rate base) is 7.5 - 8.0% on an after-tax basis.

9. The unlevered project IRRs from rate modeling by HECO based on the HECO Companies' proposed Tier 2 solar PV rates, are 5.9% and 6.5%, depending on the tax credit used.

10. Tier 2 solar PV FIT rates higher than those proposed by the HECO Companies are required to provide FIT projects the opportunity to earn unlevered project returns equivalent to the returns the HECO Companies are entitled to earn on their utility capital investments (i.e., rate base).

11. Upon information and belief, assuming construction of facilities capable of generating approximately eighty MW of electrical energy in the initial two-year period, the FIT program may entail cumulative project capital expenditures in the range of approximately \$0.4 - 0.5 billion.

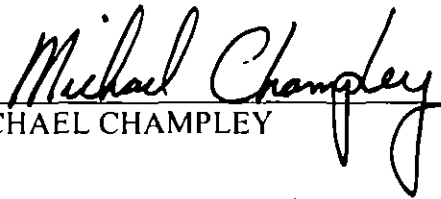
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I, MICHAEL CHAMPLEY, do declare under penalty of law that the foregoing is true and correct.

DATED: Honolulu, Hawaii, January 21, 2010.


MICHAEL CHAMPLEY

Blue Planet Unlevered Project IRR Model
24.5% HI REITC

Cost of Generation Calculator

All inputs are in \$/MWh

Technology Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$5,721
Fixed O&M (\$/MWh)	\$10.50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Fuel Cost (\$/MMBtu)	\$0
Fuel Cost Escalation	0.0%
Heat Rate (Btu/kWh)	0
Insurance (% CapEx/year)	0.575%
Land (\$/year)	\$5,000
Production Degradation (%/year)	0.75%
Capacity Factor	16.6%

Project Financial/Economic Assumptions	
Debt Percentage	0%
Debt Rate	0%
Debt Term (years)	0
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.000%
State Tax Rate (effective)	6.015%
State Excise Tax Rate (wholesale)	0.500%
Unlevered Project IRR	8%
Discount Rate	9%

Inputs		CapEx
PTC (\$/MWh)	\$0	
PTC Escalation	0.0%	
PTC Term (years)	0	
Federal ITC	30%	
HI ITC	24.5%	\$500,000
No. of Systems	5	
Outputs		
NPV for Equity Return	\$0	
Unlevered Cost of Generation	\$269.58	

Calculation	
Cap Cost	\$2,860,500
Fed1 depreciation base	\$ 2,431,425
State depreciation base	\$ 2,860,500
	0
	0 -1024908.922
	5 -1005986.234
slope	3802.137632

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	725	719	714	709	703	698	693	688	683	677	672	667	662	657	652	647	643	638	633	628
Cost of Generation	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58	\$269.58
Operating Revenues	\$188,418	\$193,894	\$192,489	\$191,655	\$189,822	\$188,200	\$186,788	\$185,348	\$183,997	\$182,617	\$181,248	\$179,888	\$178,539	\$177,208	\$175,871	\$174,552	\$173,243	\$171,944	\$170,654	\$168,374
Fixed O&M	\$9,750	\$9,094	\$10,244	\$10,500	\$10,762	\$11,031	\$11,307	\$11,590	\$11,879	\$12,176	\$12,481	\$12,793	\$13,113	\$13,440	\$13,776	\$14,121	\$14,474	\$14,836	\$15,207	\$15,587
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$10,448	\$16,859	\$17,281	\$17,713	\$18,155	\$18,609	\$19,074	\$19,551	\$20,040	\$20,541	\$21,055	\$21,581	\$22,121	\$22,674	\$23,240	\$23,821	\$24,417	\$25,027	\$25,653	\$26,294
Land/Roof Lease Costs	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Excise Tax	\$977	\$970	\$962	\$955	\$948	\$941	\$934	\$927	\$920	\$913	\$906	\$899	\$893	\$886	\$879	\$873	\$866	\$860	\$853	\$847
Operating Expenses	\$32,175	\$32,823	\$33,487	\$34,168	\$34,866	\$35,581	\$36,315	\$37,068	\$37,840	\$38,631	\$39,442	\$40,273	\$41,128	\$42,000	\$42,898	\$43,815	\$44,757	\$45,723	\$46,713	\$47,728
Project EBITDA	\$183,244	\$181,131	\$159,012	\$156,888	\$154,757	\$152,619	\$150,473	\$148,320	\$146,158	\$143,987	\$141,808	\$139,615	\$137,413	\$135,208	\$132,975	\$130,737	\$128,488	\$126,221	\$123,941	\$121,648
HI Income Tax																				
Tax Depreciation	\$572,100	\$915,380	\$549,216	\$329,630	\$326,530	\$164,765	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income	\$291,007	(\$754,270)	(\$390,204)	(\$172,642)	(\$174,773)	(\$11,145)	\$150,473	\$148,320	\$146,158	\$143,987	\$141,808	\$139,615	\$137,413	\$135,208	\$132,975	\$130,737	\$128,488	\$126,221	\$123,941	\$121,648
HI Income Tax (Benefit)	\$17,562	(\$45,367)	(\$23,471)	(\$10,384)	(\$10,510)	(\$731)	\$8,051	\$8,921	\$8,791	\$8,661	\$8,530	\$8,398	\$8,265	\$8,132	\$7,998	\$7,864	\$7,728	\$7,592	\$7,455	\$7,317
Federal Income Tax																				
Tax Depreciation	486,285	778,056	486,834	280,100	280,100	140,050	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taxable Income	\$360,220	(\$571,558)	(\$284,350)	(\$112,828)	(\$114,831)	\$13,299	\$141,422	\$139,398	\$137,368	\$135,328	\$133,278	\$131,217	\$129,148	\$127,068	\$124,977	\$122,873	\$120,758	\$118,629	\$116,486	\$114,329
Fed Income Tax (Benefit)	\$128,077	(\$200,045)	(\$99,523)	(\$39,490)	(\$10,191)	\$4,655	\$40,498	\$48,789	\$48,078	\$47,364	\$46,647	\$45,926	\$45,202	\$44,474	\$43,742	\$43,008	\$42,265	\$41,520	\$40,770	\$40,015
Federal PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$858,150																			
HI ITC	\$700,823																			
Total Income Taxes (Due)	\$1,415,334	\$245,412	\$122,993	\$48,874	\$56,703	(\$3,924)	(\$56,549)	(\$57,711)	(\$56,870)	(\$56,025)	(\$55,178)	(\$54,324)	(\$53,467)	(\$52,608)	(\$51,740)	(\$50,880)	(\$49,994)	(\$49,112)	(\$48,228)	(\$47,332)
Project Cash Flows	(\$2,860,500)	1,578,878	408,543	282,608	208,782	295,488	148,885	91,925	90,669	89,288	87,962	86,630	85,291	83,948	82,594	81,235	79,868	78,492	77,109	75,718
Net of Tax																				
Project Investment	2,860,500																			
Unlevered Project IRR Check	8.00%	Compare with Financial Assumptions Table																		

MACRS Depreciation Schedules																				
5	0.2	0.32	0.192	0.1152	0.1152	0.0576	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0.1429	0.2449	0.1749	0.1249	0.0893	0.0892	0.0893	0.0446	0	0	0	0	0	0	0	0	0	0	0	0
15	0.05	0.095	0.0855	0.077	0.0693	0.0623	0.059	0.059	0.0591	0.059	0.0591	0.059	0.0591	0.059	0.0591	0.0295	0	0	0	0
20	0.0375	0.07219	0.06677	0.06177	0.05713	0.05285	0.04888	0.04522	0.04402	0.04401	0.04402	0.04401	0.04402	0.04401	0.04402	0.04401	0.04402	0.04401	0.04402	0.04401

Blue Planet Unlevered Project IRR Model
35% HI REIT

Cost of Generation Calculator

All inputs are in blue

Technology Assumptions	
Project Capacity (MW)	0.5
Capital Cost (\$/kW)	\$5,721
Fixed O&M (\$/kW)	\$19.50
Fixed O&M Escalation	2.5%
Variable O&M (\$/MWh)	\$0
Variable O&M Escalation	0.0%
Fuel Cost (\$/MBtu)	\$0
Fuel Cost Escalation	0.0%
Heat Rate (Btu/kWh)	0
Insurance (% CapEx/year)	0.575%
Land (\$/year)	\$5,000
Production Degradation (%/year)	0.75%
Capacity Factor	18.6%

Project Financial/Economic Assumptions	
Debt Percentage	0%
Debt Rate	0%
Debt Term (years)	0
Economic Life (years)	20
Depreciation Term (years)	5
Percent Depreciated	100%
Cost of Generation Escalation	0.0%
Federal Tax Rate (marginal)	35.000%
State Tax Rate (effective)	6.010%
State Excess Tax Rate (wholesale)	0.500%
Unlevered Project IRR	8%
Discount Rate	9%

Incentive Assumptions	
PTC (\$/MWh)	\$0
PTC Escalation	0.0%
PTC Term (years)	0
Federal ITC	30%
HI ITC	35.0%
No. of Systems	5
Cap. Cost	\$500,000

Outputs	
NPV for Equity Return	\$0
Levelized Cost of Generation	\$228.21

Calculation	
Cap Cost	\$2,860,500
Fed'l depreciation base	\$ 2,431,425
State depreciation base	\$ 2,860,500
	0
	0 -807689.1718
	5 -848678.4836
slope	3802.137632

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Annual Generation (MWh)	725	719	714	709	703	698	693	688	683	677	672	667	662	657	652	647	643	638	633	628
Cost of Generation	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21	\$228.21
Operating Revenues	\$165,428	\$164,187	\$162,956	\$161,734	\$160,521	\$159,317	\$158,122	\$156,938	\$155,754	\$154,581	\$153,431	\$152,280	\$151,138	\$150,005	\$148,880	\$147,763	\$146,655	\$145,555	\$144,463	\$143,380
Fixed O&M	\$9,750	\$9,904	\$10,244	\$10,500	\$10,782	\$11,031	\$11,307	\$11,500	\$11,879	\$12,176	\$12,481	\$12,793	\$13,113	\$13,440	\$13,776	\$14,121	\$14,474	\$14,836	\$15,207	\$15,587
Variable O&M	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Fuel Cost	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Insurance	\$16,448	\$16,858	\$17,281	\$17,713	\$18,155	\$18,608	\$19,074	\$19,551	\$20,040	\$20,541	\$21,055	\$21,581	\$22,121	\$22,674	\$23,240	\$23,821	\$24,417	\$25,027	\$25,653	\$26,294
Land/Roof Lease Costs	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Excess Tax	\$827	\$821	\$815	\$809	\$803	\$797	\$791	\$785	\$779	\$773	\$767	\$761	\$755	\$750	\$744	\$739	\$733	\$728	\$722	\$717
Operating Expenses	\$32,825	\$32,874	\$33,338	\$34,021	\$34,726	\$35,437	\$36,172	\$36,928	\$37,698	\$38,481	\$39,283	\$40,135	\$40,988	\$41,884	\$42,781	\$43,681	\$44,624	\$45,581	\$46,582	\$47,598
Project EBITDA	\$133,483	\$131,513	\$129,617	\$127,713	\$125,806	\$123,889	\$121,950	\$120,019	\$118,080	\$116,190	\$114,129	\$112,145	\$110,149	\$108,141	\$106,118	\$104,682	\$102,931	\$99,864	\$97,881	\$95,782
HI Income Tax																				
Tax Depreciation	\$572,100	\$591,360	\$549,216	\$529,530	\$529,530	\$184,765	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Taxable Income	\$562,478	(\$783,847)	(\$419,590)	(\$201,817)	(\$203,729)	(\$20,685)	\$121,950	\$120,019	\$118,080	\$116,190	\$114,129	\$112,145	\$110,149	\$108,141	\$106,118	\$104,682	\$102,931	\$99,864	\$97,881	\$95,782
HI Income Tax (Benefit)	\$33,833	(\$47,148)	(\$25,230)	(\$12,136)	(\$12,254)	(\$2,459)	\$7,335	\$7,219	\$7,101	\$6,983	\$6,865	\$6,746	\$6,625	\$6,505	\$6,383	\$6,261	\$6,137	\$6,013	\$5,888	\$5,761
Federal Income Tax																				
Tax Depreciation	480,285	778,056	466,634	280,100	280,100	140,050	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Taxable Income	\$614,460	(\$590,394)	(\$311,978)	(\$130,248)	(\$142,045)	(\$13,711)	\$114,614	\$112,791	\$110,959	\$109,117	\$107,264	\$105,400	\$103,524	\$101,636	\$99,735	\$97,821	\$95,894	\$93,951	\$91,994	\$90,020
Fed Income Tax (Benefit)	\$215,081	(\$209,758)	(\$109,192)	(\$49,087)	(\$49,716)	(\$4,759)	\$40,115	\$39,477	\$38,836	\$38,191	\$37,542	\$36,890	\$36,233	\$35,573	\$34,907	\$34,238	\$33,563	\$32,883	\$32,198	\$31,507
Federal PTC	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Federal ITC	\$858,150																			
HI ITC	\$1,001,175																			
Total Income Taxes (Due)	\$1,610,431	\$256,938	\$134,431	\$61,228	\$61,970	\$7,258	(\$47,450)	(\$46,898)	(\$45,937)	(\$45,174)	(\$44,407)	(\$43,635)	(\$42,859)	(\$42,077)	(\$41,291)	(\$40,498)	(\$39,700)	(\$38,898)	(\$38,085)	(\$37,268)
Project Cash Flow	(2,860,500)	1,743,834	388,450	264,048	188,938	187,771	137,138	74,488	73,314	72,123	70,928	69,721	68,510	67,291	66,063	64,828	63,584	62,331	61,068	59,798
Net of Tax																				
Project Investment	2,860,500																			
Unlevered Project IRR Check	8.00%	Compare with Financial Assumptions Table																		

MACRS Depreciation Schedules																				
5	0.2	0.32	0.192	0.1152	0.1152	0.0576	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0.1429	0.2449	0.1749	0.1249	0.0893	0.0692	0.0693	0.0440	0	0	0	0	0	0	0	0	0	0	0	0
15	0.05	0.095	0.0855	0.077	0.0693	0.0623	0.059	0.059	0.0591	0.059	0.0591	0.059	0.0591	0.059	0.0591	0.0591	0.0591	0.0591	0.0591	0.0591
20	0.0375	0.07219	0.06677	0.06177	0.05713	0.05285	0.04888	0.04522	0.04402	0.04401	0.04402	0.04401	0.04402	0.04401	0.04402	0.04401	0.04402	0.04401	0.04402	0.04401

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE
STATE OF HAWAII

In the Matter of

PUBLIC UTILITIES COMMISSION

Instituting a Proceeding to Investigate the
Implementation Of Feed-in Tariffs.

DOCKET NO. 2008-0273

CERTIFICATE OF SERVICE

I HEREBY CERTIFY that on this date a copy of the foregoing document was
duly served upon the following individuals by placing a copy of same in the United States Mail,
postage prepaid, and/or by electronic service, as follows:

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division, Hawaiian Commercial & Sugar Company

DATED: Honolulu, Hawaii, January 21, 2010.



DOUGLAS A. CODIGA
Attorney for Blue Planet Foundation